Exploring Gesture Control for InfoVis

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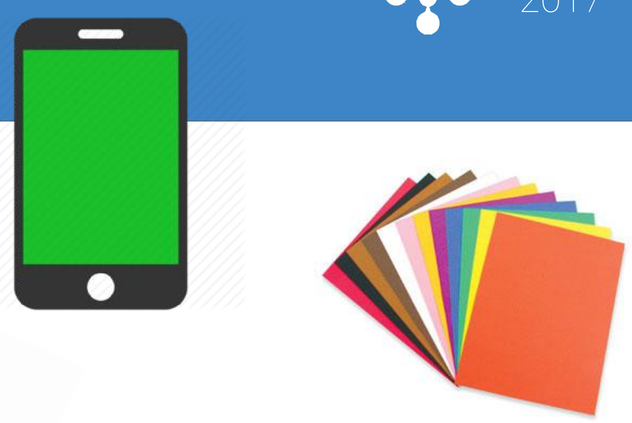
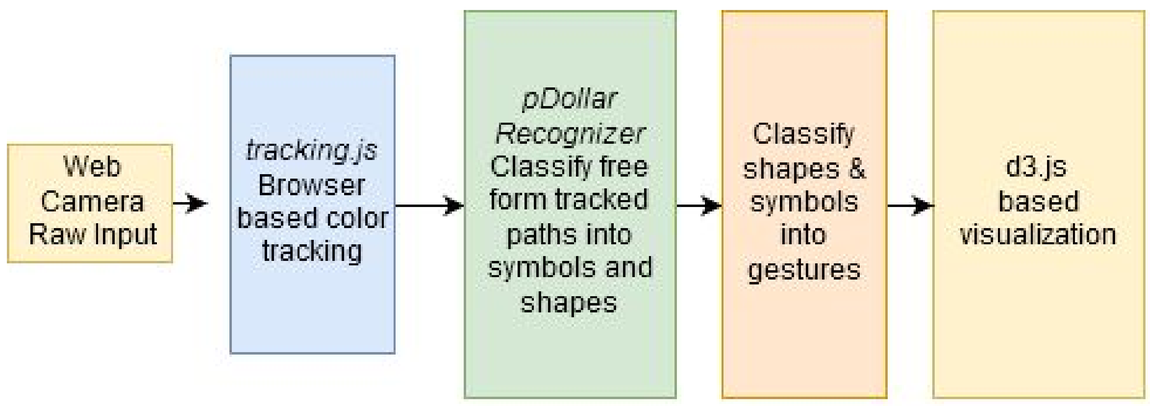
Introduction

- InfoVis is moving to new contexts: public spaces and corporate meetings.
- Some situations call for interacting with visualizations from a distance, with less input precision.
- Gesture control devices are often expensive and bulky -- we wanted to do it with minimal technology requirements.



User Input Devices: Our system interfaced seamlessly with colored phone screens, colored papers and markers, and a custom arduino based device with adjustable colors

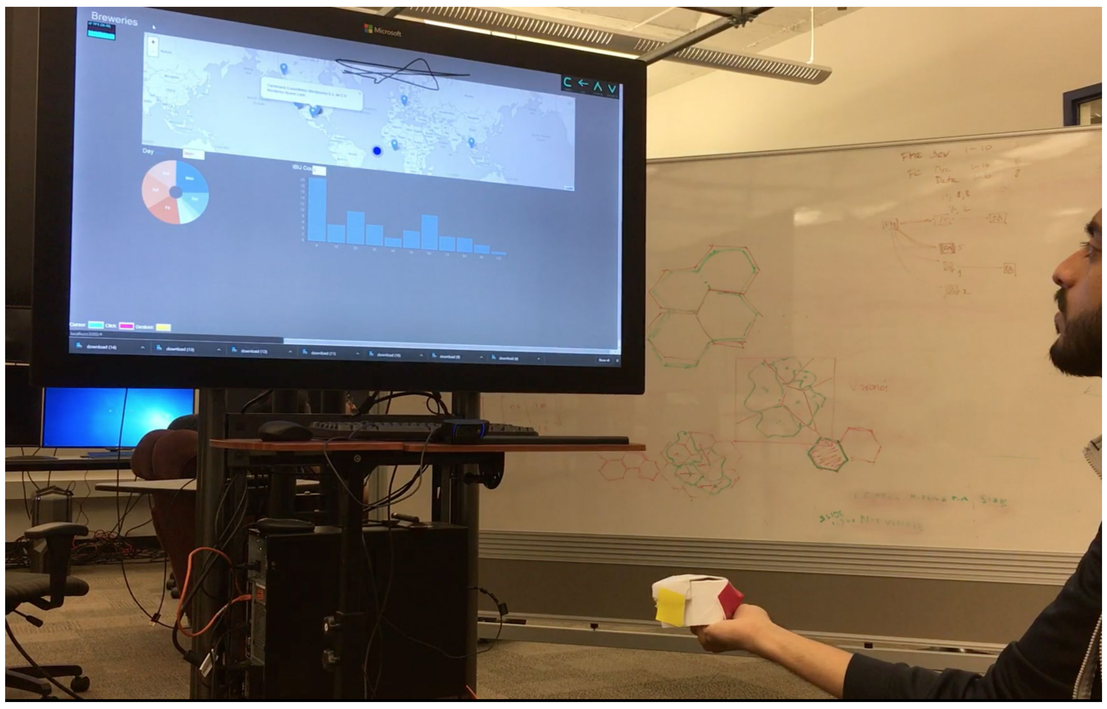


Concept

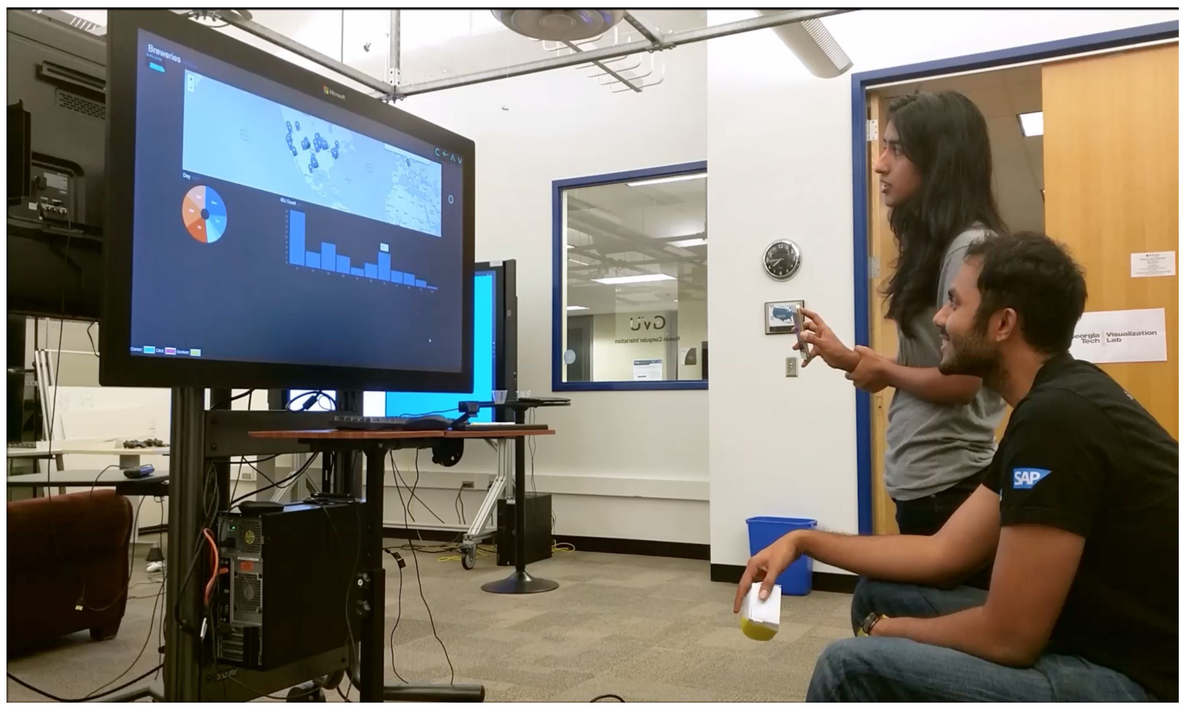
- Use simple colored objects to interact with the system
- Enable the camera to track the moving colored objects and signal the system
- The system processes and categorizes the (color, shape) gestures into commands

Prototype

- We build an interactive d3 based web visualization system
- Our system has three states for interaction - a pointing/hovering mode; a clicking mode; and a gesture mode. Each of these three states is triggered by a different color
- The system recognizes the underlying command based on the color and gesture and applies it to the active visualization
- Gesture mapped commands include drawing simple shapes on-screen for common interactions like Zooming, Panning & Sorting.



Direct manipulation and gesture feedback: The blue dot on the screen is the pointer controlled by the user. The shape in black is an ‘asterisks’ the user has traced to capture a screen-shot



Multiple users using multiple devices: User 1 is using a colored cube, user 2 is using a phone with a colored image loaded

What’s next?

- Use Bubble Cursors for easier on-screen object navigation and selection
- Explore multi-user interaction and collaboration without conflicting interactions
- Enable users to register patterns for modes in addition to single colors

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